

Helminth Parasites of the Spotted Sucker and Golden Redhorse from the Kentucky River¹

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ABSTRACT

The following helminths were recovered from 56 spotted suckers: Acanthocephala, *Acanthocephalus* sp.; Cestoidea, *Biacetabulum banghami*, *Biacetabulum* sp., *Isoglaridacris folius*, *Monobothrium ulmeri*, and *Promonobothrium minytremi*; and 62 golden redhorse: Acanthocephala, *Acanthocephalus* sp. and *Neoechinorhynchus prolixoides*; Cestoidea, *Biacetabulum* sp., *Isoglaridacris folius*, *Monobothrium ulmeri*, and *Promonobothrium minytremi*; and Nematoda, *Camallanus oxycephalus* and *Rhabdochona* sp. from the main channel of the Kentucky River. Four of 6 species of helminths recovered from spotted suckers and 4 of 8 species recovered from golden redhorse are new host records, and 8 of 9 species recovered are new state records.

INTRODUCTION

A review of the literature indicates that only 5 published works exist on the helminth parasites of catostomid fishes from Kentucky (Aliff 1977; White and Harley 1973, 1974; White 1974; and Combs et al. 1976). All of them concern the white sucker *Catostomus commersoni* except the report by Combs et al. (1976) in which the authors reported spotted suckers *Minytrema melanops* and golden redhorse *Moxostoma erythrurum* as new host records for the monogenetic trematode *Anonchohaptor muelleri*.

As a result, it was felt that a more complete study of the parasites should be done on the spotted and redhorse suckers from the Kentucky River, and is the basis for this report.

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MATERIALS AND METHODS

Forty-six *Minytrema melanops* and 62 *Moxostoma erythrurum* were collected from August 1973 through April 1974, from the main channel of the Kentucky River and from the mouths of 7 tributaries (Eagle Creek, Elkhorn Creek, Dix River, Red River, North, Middle, and South Forks). Most spotted suckers were collected upstream while most golden redhorse were collected downstream in the Kentucky River drainage. All fish were autopsied fresh and parasites stained by routine methods.

RESULTS

Parasites recovered from *M. melanops* are listed in Table 1 and those from *M. erythrurum* in Table 2. Mean intensity infestation indicates the number of helminths found in each infested fish.

Nearly 1,050 individual helminths comprising 9 species were recovered from the host fishes. In *M. melanops*, 79 percent of the fish examined were infested by 1 or more helminths while in *M. erythrurum*, 54 percent were infested. Four of the 8 species of helminths recovered from *M. erythrurum* and 4 of the 6 species recovered from *M. melanops* constituted new host records. Eight of the 9 species recovered from both catostomids constitute new state records.

The following is an annotated list of hel-

TABLE 1.—MEAN INTENSITY OF INFESTATION BY HELMINTHS RECOVERED FROM 46 *MINYTREMA MELANOPS* FROM THE KENTUCKY RIVER INCLUDING NEW HOST AND STATE RECORDS

Parasite	No. fish infested	Mean intensity of infestation	Total helminths	Location	Records	
					New host	New state
Acanthocephala						
<i>Acanthocephalus</i> sp.	22	9	183	gut	X	
Trematoda						
<i>Anonchopator</i> sp.	12	5	56	mouth cavity	X	X
Cestoda						
<i>Biacetabulum banghami</i>	10	3	34	gut	X	X
<i>Biacetabulum</i> sp.	1	1	1	gut		X
<i>Isoglaridacris folius</i>	1	1	1	gut	X	X
<i>Monobothrium ulmeri</i>	1	2	3	gut	X	X
<i>Promonobothrium minytrema</i>	26	11	269	gut		X

minths recovered from *M. melanops* and *M. erythrurum* from the Kentucky River.

Acanthocephalus sp.—This acanthocephalan was designated as *Acanthocephalus* sp. because it is very closely related to *A. jacksoni*, as reported by White (1974) from the Kentucky River, and *A. dirus* (Bullock, pers. comm.). The genus *Acanthocephalus* is highly variable and causes a great deal of confusion in identification to species.

In the present study, *Acanthocephalus* sp. constituted 60 percent of all helminths found in *M. melanops* and *M. erythrurum*; it was the most abundant helminth in *M. erythrurum* and the second most abundant in *M. melanops*. This is the first report of *Acanthocephalus* sp. from either fish and thus constitutes new host records for the genus *Acanthocephalus*. The genus was first reported in Kentucky by White (1974) in *Catostomus commersoni* from the Kentucky River drainage.

Neoechinorhynchus prolixoides.—This is the first report for the species outside New Hampshire since its original description by Bullock (1963). It was found only in *M. erythrurum*, and constitutes a new host record and geographical range extension into Kentucky.

Biacetabulum banghami.—Mackiewicz (1968) first reported this caryophyllaeid cestode from *M. melanops* and *M. ery-*

thrurum from Alabama and Oklahoma. In the present study, it was recovered only from *M. melanops*, was the fourth most abundant helminth, and constitutes a new state record.

Biacetabulum sp.—This caryophyllaeid cestode was designated as *Biacetabulum* sp. since it was very similar to specimens of *B. infrequens* Mackiewicz found (pers. comm.) in *M. erythrurum*, but our species has too few postovarian vitellaria to be *B. infrequens*. Mackiewicz (pers. comm.) believes our species might be either *B. meridianum* or a variety of that species. Further investigation is needed before species confirmation can be made.

In the present study, *Biacetabulum* sp. was recovered from both *M. melanops* and *M. erythrurum*. The occurrence of this genus in the Kentucky River thus constitutes a new state record for both fishes.

Isoglaridacris folius.—*Isoglaridacris folius* was recovered from both *M. melanops* and *M. erythrurum*. This species of caryophyllaeid cestode has been reported previously from *M. erythrurum* in Iowa by Fredrickson and Ulmer (1967). The occurrence in *M. melanops* constitutes a new host record as well as range extensions into Kentucky for both fishes.

Monobothrium ulmeri.—*Monobothrium ulmeri* was recovered from both the spotted

TABLE 2.—MEAN INTENSITY OF INFESTATION BY HELMINTHS RECOVERED FROM 62 *MOXOSTOMA ERYTHRURUM* FROM THE KENTUCKY RIVER INCLUDING NEW HOST AND STATE RECORDS

Parasite	No. fish infested	Mean intensity of infestation	Total helminths	Location	Records	
					New host	New state
Acanthocephala						
<i>Acanthocephalus</i> sp.	22	21	484	gut	X	
<i>Neoechinorhynchus prolixoides</i>	4	1	6	gut	X	X
Trematoda						
<i>Anoncohaptor</i> sp.	4	1	5	mouth cavity	X	X
Cestoda						
<i>Biacetabulum</i> sp.	3	3	9	gut		X
<i>Isoglaridacris folius</i>	1	1	1	gut		X
<i>Monobothrium ulmeri</i>	1	1	1	gut		X
<i>Promonobothrium minytremiti</i>	12	1	16	gut	X	X
Nematoda						
<i>Camallanus oxycephalus</i>	8	3	24	gut		
<i>Rhabdochona</i> sp.	1	3	3	gut	X	X

sucker and the golden redhorse. Calentine and Mackiewicz (1966) reported the definitive hosts of *M. ulmeri* to be *Hypentelium nigricans*, *Moxostoma anisurum*, and *Moxostoma erythrurum*. The finding of this helminth in the present study constitutes a new host record for *M. melanops* and range extensions into Kentucky for both fishes.

Promonobothrium minytremiti.—Mackiewicz (1968) reported the definitive host of *P. minytremiti* to be *M. melanops*. In the present study, *P. minytremiti* was recovered from both *M. melanops* and *M. erythrurum*. *Promonobothrium minytremiti* was the second most abundant helminth in *M. erythrurum* and constitutes a new host record. In *M. melanops*, *P. minytremiti* constituted the most abundant helminth with an infestation rate of 56 percent. The occurrence of *P. minytremiti* in both catostomid fishes constitutes new state records.

Camallanus oxycephalus.—The nematode *C. oxycephalus* has been found in many species of fishes including several genera of catostomids (Hoffman 1967), and appears to be one of the most common helminths of freshwater fishes. In the present study, *C. oxycephalus* was recovered from

M. erythrurum and was the third most abundant helminth in that fish as well as representing a new state record.

Rhabdochona sp.—Several species of *Rhabdochona* have been reported previously from catostomid fishes (Hoffman 1967). In the present study, *Rhabdochona* sp. was found in *M. erythrurum* and constitutes a new host and state record for the genus.

DISCUSSION

Helminth infestation rates in *M. melanops* and *M. erythrurum* were inversely proportional to the distribution of the catostomid fishes in the Kentucky River. *Moxostoma erythrurum* with a wide distribution in the river, had an infestation rate of 54 percent while *M. melanops*, with a restricted distribution, had a higher infestation rate (79%).

The helminth *Acanthocephalus* sp. exhibited the greatest density and distribution throughout the Kentucky River, while the caryophyllaeid cestode *P. minytremiti*, had the second greatest density and distribution. No digenetic trematodes were recovered in this study. Their scarcity probably is attributable to the high silt load of the river that is reducing the abundance and

distribution of gastropod intermediate hosts (Leung and Williams 1975). It is of interest to note that Aliff (1977) reported relatively heavy infestations of digenetic trematodes based on extensive collections in 13 tributaries to the Kentucky River. In that study, he examined 17 golden redhorse from those tributaries and reported metacercariae of *Clinostomum* sp. in only a single fish from the Red River in Powell County.

Seasonal variation of helminths was observed in the present study with a peak intensity of infestation being reached during February and March. No difference in parasite infestation was apparent as related host sex or age, or recovery sites.

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